

LECHEA RACEMULOSA Michx. Occasional: border of woods, east of Little Creek, no. 4049.

VIOLA AFFINIS LeConte. Dry, mixed woods, Little Neck, no. 4056.

V. SORORIA Willd. Dry, mixed woods, Little Neck, no. 4055.

V. BRITTONIANA Pollard. Frequent in swales and damp open soil: Rifle Range, no. 4053, also *F. & G.*, no. 4469; Sand Bridge, *F. G. & L.*, no. 4676; Munden, *F. & G.*, no. 4468; North Landing, *F. & G.*, no. 4467; Blackwater River, no. 4054; Richard Swamp, *F. & G.*, no. 4466.

V. PECTINATA Bickn. Local: wood-road in pine woods, Dam Neck, no. 4051; damp peat, Rifle Range, *F. & G.*, no. 4463.

Apparently the first record from south of Maryland. Our collections are quite like Bicknell's original material.

LUDWIGIA GLANDULOSA Walt. Large bushy-branched plants 1 m. high, in gum swamp south of North Landing, no. 4076.

Apparently the first station known north of South Carolina.

L. PILOSA Walt. Wet, peaty clearings in woods of *Pinus serotina*, south of Grassfield, no. 4074, there growing with *L. LINEARIS* Walt. (our no. 4075).

The first evidence, apparently, of *Ludwigia pilosa* from north of South Carolina.

L. BREVIPES (Long) E. H. Eames, RHODORA, xxxv. 228 (1933) (*Ludwigiantha brevipes* Long). Western Branch of James River, near Portsmouth, August, 1840, *F. Rugel* in Gray Herb.; shallow water, pond along railroad, 37th Street Station, Cape Henry [Virginia Beach], June 26, 1922, *Randolph & Randolph*, no. 331; shallow pools and wet sand of dune-hollows, south of False Cape, Princess Anne Co., no. 4070.

Our station, south of False Cape, is very extensive, within a short distance of the North Carolina line and on one of the outer sand-bar islands which extend to Cape Hatteras and beyond. The species will doubtless be found in North Carolina. The type station, on the New Jersey coast, is the only one known north of Virginia.

HYDROCOTYLE CANBYI C. & R. Frequent in Princess Anne Co.: silts near outlet of Rainey's Pond, Sand Bridge, no. 4090; damp sand and clay back of the ponds, Dam Neck, no. 4091.

H. RANUNCULOIDES L.f. Local: in and by a brook, inundated swale back of the dunes, False Cape, no. 4086.

CICUTA CURTISII C. & R. Gum swamps: Oceana, no. 4083.

ANGELICA VILLOSA (Walt.) BSP. Border of dry, mixed woods, Little Neck, no. 4082.

CORNUS STRICTA Lam. Swamps and margins of creeks: False Cape, no. 4100; Indian Creek, *F. G. & L.*, no. 4648.

THE VARIETIES OF NYSSA SYLVATICA (PLATES 397-400).—In Princess Anne County we were very much perplexed by the genus



*Nyssa*. *N. aquatica* L., with its large solitary fruits, was perfectly clear, but the trees with small paired or triple fruits showed such diversity of foliage, two of the extremes often growing within a few miles of each other, that it has seemed important to settle, so far as possible, their identities. Very briefly, I find no very positive differences in flowers and fruits in the series including *N. sylvatica* Marsh. and *N. biflora* Walt. Another of the series, not recently recognized, is *N. caroliniana* Poiret, in which the foliage and fruits are somewhat larger than in the other two, but with so many transitions that I am forced to treat them as well marked varieties. From the description "with oval, or rather inverse egg-shaped leaves" and from the region whence it came (Pennsylvania) *N. sylvatica* Marsh. is clearly the northern extreme, with long fruiting peduncles, short staminate pedicels and elliptic to obovate, abruptly short-pointed and comparatively small leaves smooth beneath. *N. biflora* Walt., from the brief diagnosis "foliis oblongo-lanceolatis integerrimis, laevibus", is safely identified as the narrow-leaved tree with short peduncles already generally understood as *N. biflora*. *N. caroliniana* Poir., with leaves long-tapering to both ends and with long staminate pedicels, I take to be the tree of the series with longest leaves, conforming to the general outline shown in Poiret's illustration. A fourth extreme, somewhat similar to *N. caroliniana*, but with broadly oval to short-oblong leaves, is in some points about as near true *N. sylvatica* but usually with shorter fruiting peduncles and longer staminate pedicels; in other points suggestive of a broad-leaved *N. biflora*. This is distinctly a southern tree and I am unable to identify it with any described form. In order to show the four varieties of *N. sylvatica*, as I view them, it seems desirable that they be illustrated (PLATES 397-400). The maps of ranges are based on all the material at the Arnold Arboretum and the Gray Herbarium.

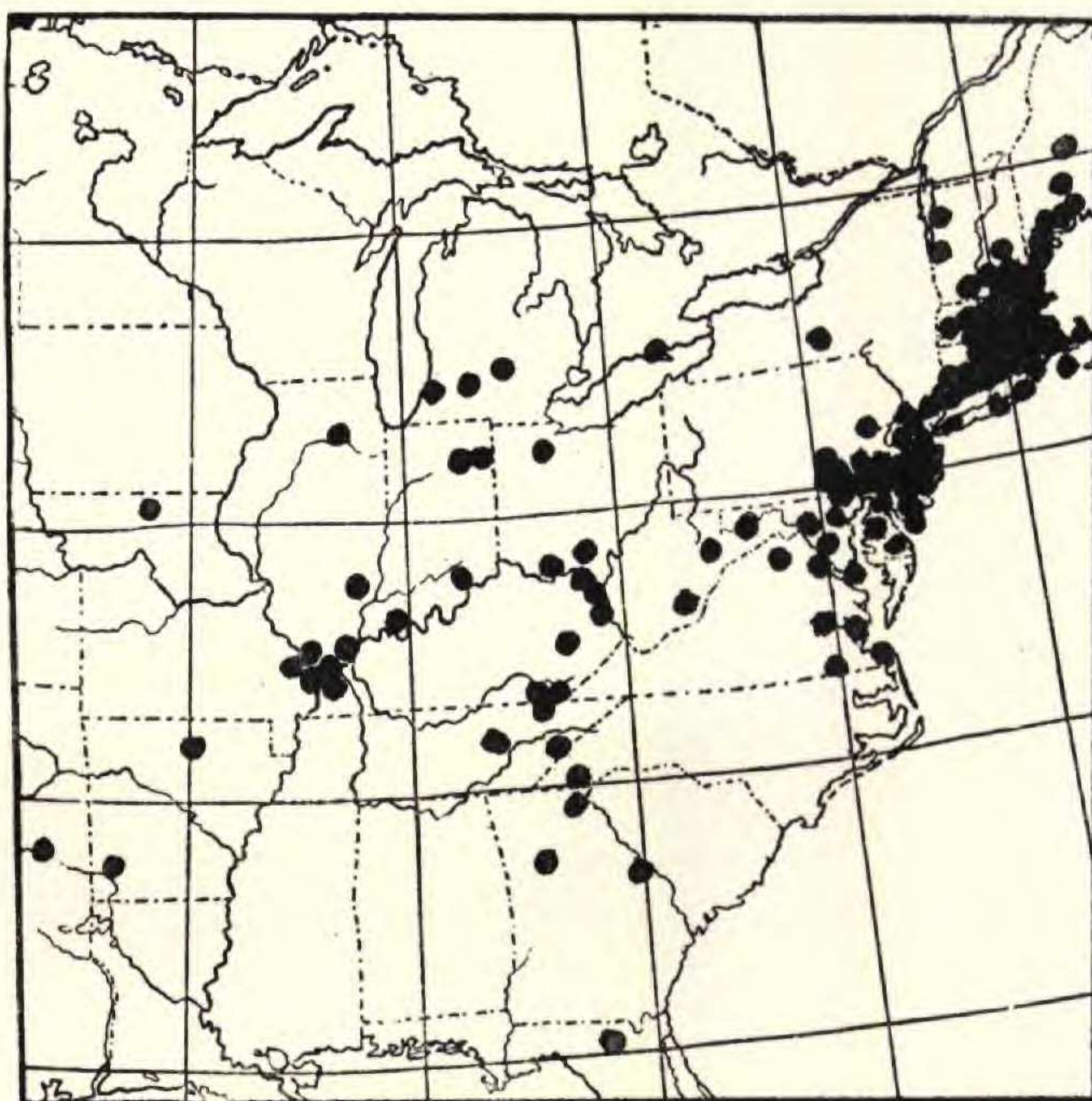
The following brief characterizations, with the illustrations, may make my treatment clear.

NYSSA SYLVATICA Marsh., var. **typica**. *N. sylvatica* Marsh. Arb. Amer. 97 (1785). *N. multiflora* Wang. Nordam. Holz. 46, t. 16, fig. 39 (1787). *N. multiflora*, var. *sylvatica* (Marsh.) Wats. Bibl. Index, 442 (1878).—Leaves adjacent to flowers and fruits (excluding those of vegetative sprouts and leading tips) obovate to elliptic, frequently with short abrupt tip, firm or subcoriaceous, lustrous above, smooth (rarely papillate) and glabrous or glabrate (except sometimes on nerves) beneath, 3-8(-10) cm. long, 2-6 cm. broad: fruiting peduncles (1.5-)3-6.5 cm. long: staminate pedicels 0.5-4 mm. long.—West-central Maine to northern Missouri, south to Virginia and Tennessee



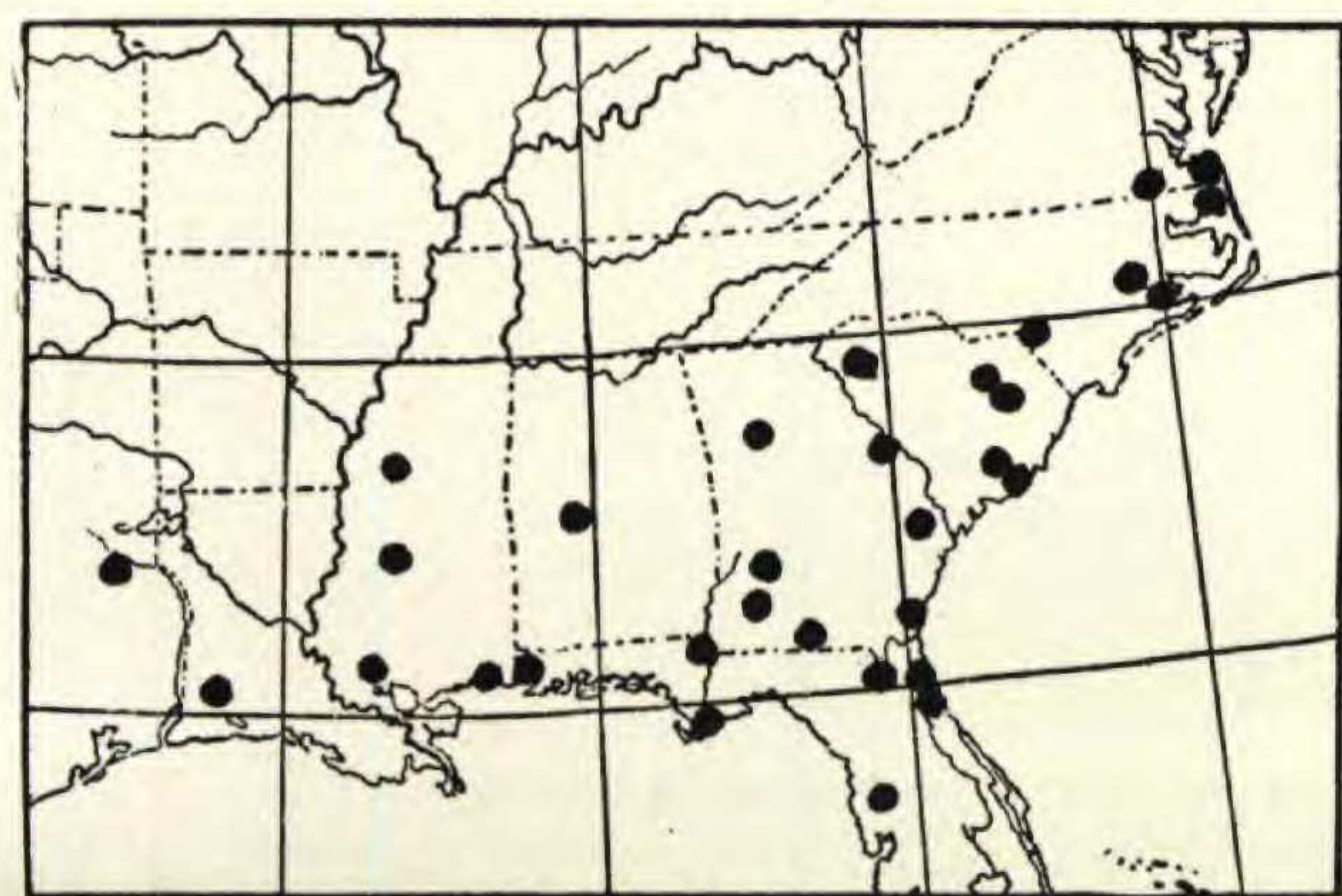
and more locally to northern Florida and northeastern Texas. PLATE 397; MAP 1.

Var. BIFLORA (Walt.) Sarg. Sylva, v. 76, t. ccxviii. (1893). *N. biflora* Walt. Fl. Car. 253 (1788).—Leaves coriaceous, those adjacent to flowers and fruits oblanceolate, narrowly obovate or narrowly oblong-lanceolate, round-tipped, obtuse or subacute, lustrous above, smooth or papillate beneath, 2.5–6(–9) cm. long, 1.5–3.5 cm. broad: fruiting peduncles 1–3.5 cm. long; staminate pedicels 3–5 mm. long.—Coastal plain, southeastern Maryland to Florida, thence to eastern Texas, inland, locally, into the piedmont. PLATE 398; MAP 2.<sup>1</sup>



MAP 1. Range of NYSSA SYLVATICA, var. TYPICA.

Although Sargent in his later work (Manual) and Small maintain *Nyssa biflora* as a species, said to have “Stone prominently ribbed” (Sargent) as opposed to “Stone indistinctly ridged” in *N. sylvatica*,



MAP 2. Range of NYSSA SYLVATICA, var. BIFLORA.

I get little distinction; to me they are both furrowed but without any striking difference. When growing in “gum swamps,” with abundant water, the bases of the trunks of var. *biflora* are enlarged or swollen, but when growing in damp sands, away from standing water, they do not show this basal enlargement. I am, therefore,

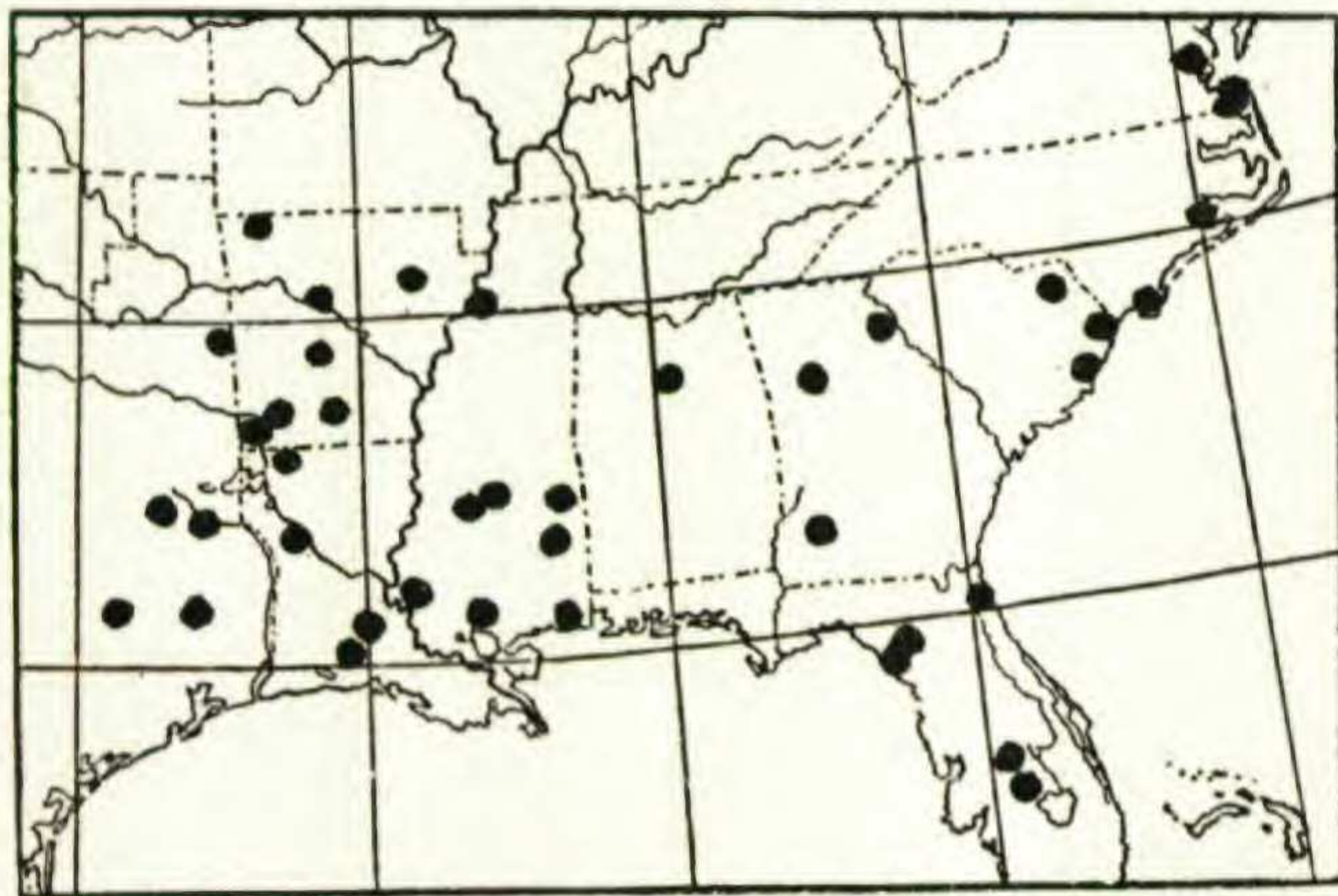
in full accord with Sargent’s earlier statement, in the Sylva: “This aquatic tree often appears distinct enough from the northern

<sup>1</sup> The range of var. *biflora* should be indicated as extending northward to southeastern Maryland.



Tupelo, but the extreme forms are connected by others intermediate between the two in the shape and size of their leaves and in the shape and ridges of their stones." *Var. biflora* passes into

*Var. dilatata*, var. nov. (TAB. 399), foliis maturis late ovalibus vel rotundato-oblongis vel late obovatis apice rotundatis subcoriaceis

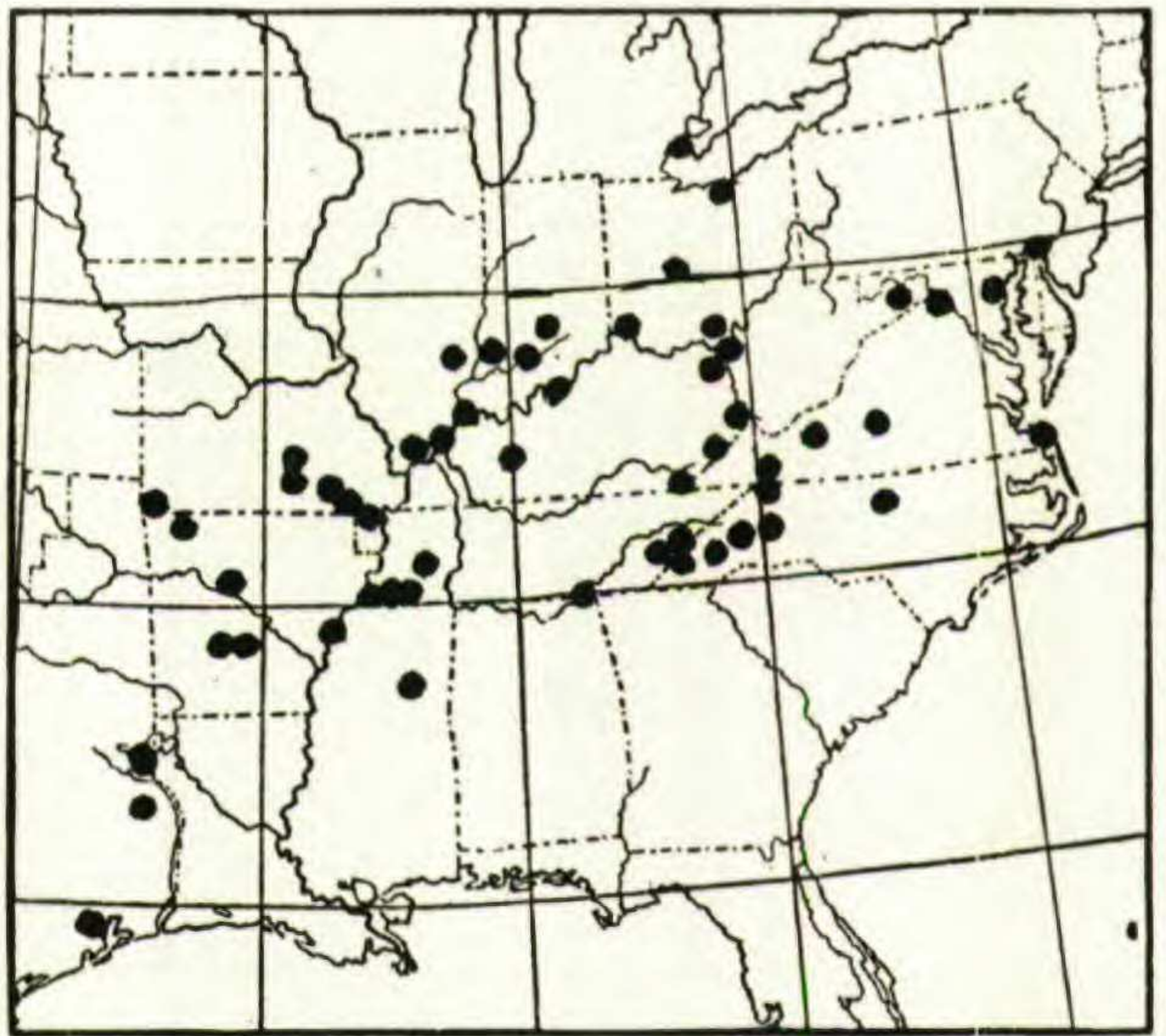


MAP 3. Range of *NYSSA SYLVATICA*, var. *DILATATA*.

supra lucidis subtus planis vel papillatis pilosis vel glabris; fructi pedunculis 1.5–5 cm. longis; florum staminorum pedicellis 3–8 mm. longis.—Coastal plain, rarely piedmont, southeastern Virginia to Florida, thence to eastern Texas, eastern Oklahoma and Arkansas. TYPE (PLATE 399): low ground, sandy oak-pine woods, 4 miles southwest of Hartwell, Hart

Co., Georgia, August 19, 1927, *Wiegand & Manning*, no. 2339 (Gray Herb.). MAP 3.

*Var. caroliniana* (Poir.), comb. nov. *N. Caroliniana* Poir. in Lam. Encycl. iv. 507 (1796) and Ill. iii. 442, t. 851, fig. 1 (1823).—Leaves submembranaceous to thin-coriaceous; those adjacent to flowers and fruit rhombic-oval to rhombic-obovate, tapering subequally to the usually acuminate (rarely blunt) base and apex, papillose and frequently pilose beneath, (6–) 8–15 cm. long, 3.5–8 cm. broad: fruiting peduncles 1.5–5 cm. long; pedicels of staminate flowers 2–4.5 mm. long.—Chiefly in the uplands and the interior, Chester County, Pennsylvania to Essex Co., Ontario, thence to southeastern Virginia, interior North Carolina, Tennessee, northern Mississippi and eastern Texas. PLATE 400; MAP 4.



MAP 4. Range of *NYSSA SYLVATICA*, var. *CAROLINIANA*.



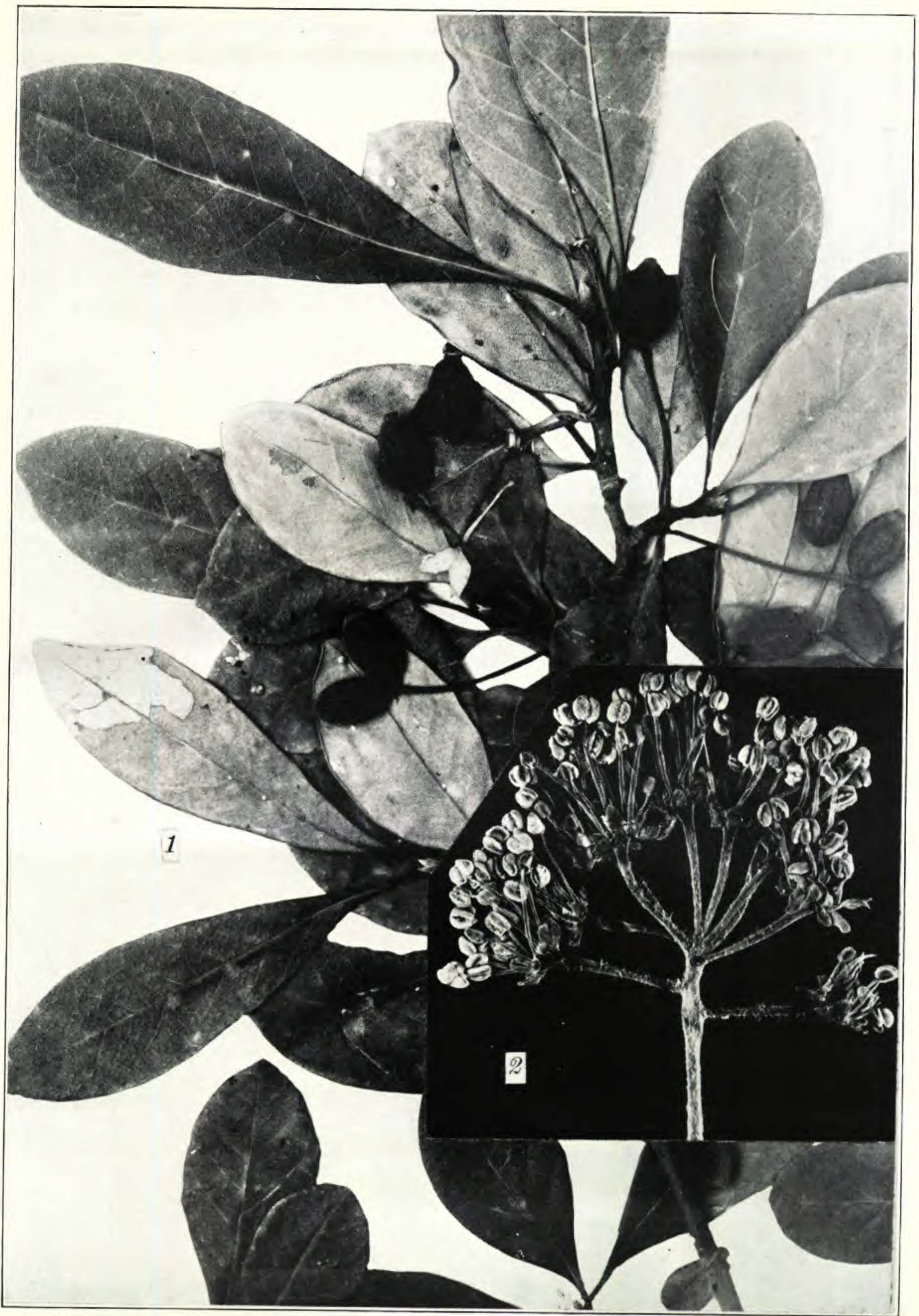


Photo. E. C. Ogden.

NYSSA SYLVATICA, var. BIFLORA: FIG. 1, fruiting branch,  $\times 1$ ; FIG. 2, staminate inflorescence,  $\times 3$ .